

Accepted Manuscript

Title: Hierarchical magnetic/chitosan/graphene oxide 3D nanostructure as highly effective adsorbent

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PII: S0025-5408(17)32606-5
DOI: <http://dx.doi.org/10.1016/j.materresbull.2017.09.023>
Reference: MRB 9564

To appear in: *MRB*

Received date: 6-7-2017
Revised date: 14-9-2017
Accepted date: 15-9-2017



Please cite this article as: F.A. Taher, F.H. Kamal, N.A. Badawy, A.E. Shrshr, Hierarchical magnetic/chitosan/graphene oxide 3D nanostructure as highly effective adsorbent, Materials Research Bulletin <http://dx.doi.org/10.1016/j.materresbull.2017.09.023>

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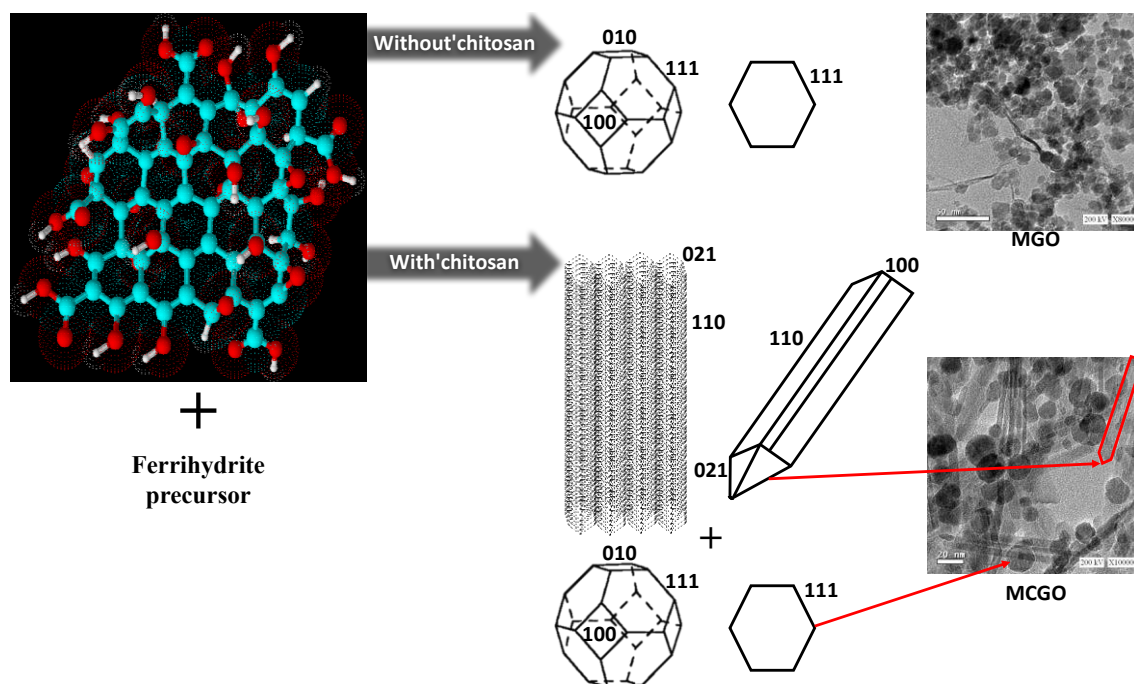
Hierarchical magnetic/chitosan/graphene oxide 3D nanostructure as highly effective adsorbent

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Graphical abstract



Highlights

- The growth mechanisms of ferrihydrite for hierarchical MCGO 3D nanostructure adsorbent are controlled and discussed to achieve highly effective adsorbent.
- The presence of chitosan directed the ferrihydrite to form goethite hollow nanorods; while in its absence, the ferrihydrite only generates cubo-octahedral magnetite crystals.
- The grown magnetically-separable MCGO adsorbent has a saturation magnetization of 120.06 emu/g and an excellent DB367 adsorption capacity of 298.27 mg g⁻¹ in 30 min.
- The heterostructure of MCGO acts as a separation filter in addition to the adsorption effect in removing Disperse Blue 367.

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